

Appl. No. 09/876,290
Amdt. Dated March 28, 2007
Reply to Office Action of November 28, 2006

AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings include changes to Fig. 3.

The brackets referenced by the Examiner have been removed and replaced with lead lines. No new matter has been added.

Attachment: Replacement Sheets

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REMARKS

Applicants submit herewith a Request for Continued Examination accompanying a preliminary amendment.

Applicants have amended the attached drawing for Figure 3 to replace the bracket with lead lines.

Without conceding the propriety of the Examiner's position, and solely to expedite prosecution, claims 16 - 19 have been cancelled without prejudice or disclaimer. In light of the forgoing, Applicants submit that the Examiner's rejections of these claims under various statutory and code sections must be withdrawn.

Regarding the Examiner's objection to the drawings under 37 C.F.R. 1.83(a), Applicants submit that the feature claimed in claims 2 and 14 (two pairs of opposing side walls forming a rectangular shape) is clearly shown in the drawings and described in the specification. Figures 2(d), 2(e), 3, and 4, while being limited to a cross-section view of the box-shaped member, when read in light of the specification (see page 15), clearly teaches that the semiconductor modules 2 are surrounded on all sides by the walls of the body 15 in these embodiments. This necessarily requires the box-shaped member be comprised of two pair of parallel opposed side walls of the body 15. Additionally, the plan view of Fig. 5(b), while illustrating the use of pins 32 instead of side-walls of the body 15, shows the pins arranged in a rectangular 'box-shape.' In light of the forgoing, Applicants respectfully request the Examiner withdraw the objection under 37 C.F.R. 1.83(a).

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Regarding the Examiner's objection to the specification under 37 C.F.R. 1.75(d), Applicants have amended the claim to more specifically require that the lateral restriction mechanism be formed in a rectangular shape comprised of two pairs of opposing side-walls. As discussed above, this structure is clearly supported by Figures 2(d), 2(e), 3, and 4 and page 15 of the Specification. In light of the forgoing, Applicants respectfully request the Examiner withdraw the objection under 37 C.F.R. 1.75(d).

Regarding the Examiner's rejection of claims 7, 11, 14, and 16 – 18 under 35 U.S.C. §101 and §112, Applicants submit that these claims have been amended in order to obviate a majority of the Examiner's objections. The remainder of the claim elements not amended are functional relationships or necessary structural relationships, both of which are valid apparatus claim elements.

More specifically, and consistent with MPEP §2173.05(g), Applicants submit that "There is nothing inherently wrong with defining some part of an invention in functional terms." *MPEP* §2173.05(g), Revision 3, August 2005. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). The Court of Appeals for the Federal Circuit addressed the issue as recently as 1998, stating that while hybrid apparatus and method of use claims should be analyzed closely, "...an apparatus claim may include functional limitations." *R.A.C.C. Indus. v. Stun-Tech, Inc.*, 1998 U.S. App. LEXIS 30769 (Fed. Cir. 1998). The court went on to note that they "never determined that functional language in a claim converts an apparatus claim into a

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method of use or hybrid claim.” *Id.* In light of the forgoing, Applicants respectfully request that the Examiner withdraw the rejections of these claims under §§101 and 112.

In regard to the Examiner’s rejection of claims 2, 7, 11, 14, and 16 – 18 under 35 U.S.C. §112, second paragraph, as being indefinite for alternately using the terms ‘box-shaped’ or ‘two pairs of opposing side walls,’ Applicants submit that there is more than adequate support for these terms in the specification and drawings. As discussed above, Figures 2(d), 2(e), 3, and 4, while being limited to a cross-section view of the box-shaped member, when read in light of the specification (see page 15), clearly teaches that the semiconductor modules 2 are surrounded on all sides by the walls of the body 15 in these embodiments. As shown in Fig. 5(b), the semiconductor modules are rectangularly shaped. Accordingly, in order to be surrounded on all sides, the semiconductor jig walls must also be box-shaped, or in other words, comprised of two pairs of opposed parallel side walls forming a rectangular structure 15. Additionally, the plan view of Fig. 5(b), while illustrating the use of pins 32 instead of side-walls of the body 15, shows the pins/lateral position restriction mechanism is arranged in a rectangular ‘box-shape’ comprised of two pairs of parallel opposing side walls.

Applicants respectfully disagree with the Examiner’s assertion in the Response to Arguments portion of the Office Action that the Figures 5(a), 5(b), and 6 cannot be relied upon because they are directed to an unelected species (See pg. 15 of the Action). Rather, Applicants submit that the application must be considered as a whole in giving meaning and

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support for the claim terms, including portions of the drawings and specification directed to alternate species. Applicants respectfully request the Examiner provide statutory, code, or MPEP support for his assertion in the next office action, or withdraw this argument.

In light of the foregoing Applicants respectfully request the Examiner withdraw the 35 U.S.C. § 112 rejections and place these claims in condition for allowance.

Applicants respectfully request reconsideration of Examiner's rejection of Claims 1, 2, and 20 under 35 U.S.C. §102(b) as being unpatentable over Normington (U.S. Patent No. 5,397,916). Normington is directed to a semiconductor device including stacked TAB tape dies having their electrical leads 65 curved 180° and placed into the subassembly such that the leads 65 of each die 61 – 64 interfaces with electrical connections 71 – 74 formed on a sidewall of the subassembly. However, such a structure fails to anticipate the currently claimed invention for at least the reason that by not rigidly interfacing the semiconductor dies 61 – 64 with the sidewall 70 of the subassembly, the Normington reference would fail to prevent the deformation of the semiconductor dies during a subsequent manufacturing process such as reflow. See, for example, Column 6, lines 34 – 40 of Normington, which discloses that the leads 65 of the dies 61 – 64 are flexible. See also Column 10, lines 1 – 5, which discloses that the dies “are not rigidly connected to the sides of the package.” By not forming the sides of the sub-assembly to slightly more than but substantially equal to the width of the ridge portion of the dies, the Normington reference fails to prevent the deformation of the dies during a subsequent manufacturing process.

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Applicant's invention, on the other hand, requires that the jig include a lateral position restriction mechanism for positioning and aligning a plurality of stacked semiconductor modules on a solid base member with their respective lateral positions mutually restricted, the lateral position restriction mechanism formed at a width slightly more than but substantially equal to a width of a rigid portion of said plurality of semiconductor modules so as to rigidly restrict the deformation of said semiconductor modules. See for example, Fig. 4 and page 15, last full paragraph to page 16, first partial paragraph, which states that "[t]he sectional dimension [of the body 15] is formed almost equally to the outside dimension of the semiconductor module 2." As a result, the rigid interface between the jig and the modules prevents the modules from deforming in a subsequent manufacturing process. Normington fails to disclose such a device, and actually, teaches away from it by requiring a non-rigid connection between the dies and the subassembly.

In light of the forgoing, Applicants respectfully submit that the Examiner's rejection under 35 U.S.C. §102 must be withdrawn, and the remaining claims placed into condition for allowance.

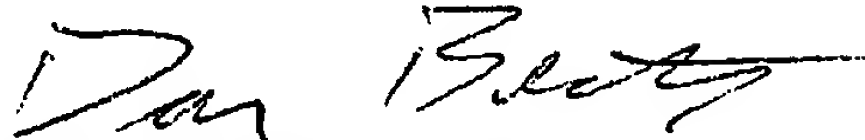
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In conclusion, and based upon the above amendments and remarks, Applicants respectfully submit that all claims now stand in condition for allowance.

Respectfully submitted,

Date:

3-28-07



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